VIEW POINTS

THE QUARTERLY PUBLICATION OF THE KODAK VIEWFINDER™ FORUM VOLUME II NO. 4

Enhancing Your Vision With Lenses

The number of photographic possibilities in any scene is infinite. The lens you choose to record a scene — and the way you work with that lens — makes the critical difference in how you portray your world. When you take full advantage of your lenses' capabilities, your images will show it and you'll find countless challenges for your photographic eye.

This article will explore how lenses let you transform a world of potential subjects, not only by changing the size of an image but also by appearing to magnify, stretch or shrink space. You'll see how you can adapt your shooting techniques to the unique properties of different types of lenses. But more than just learning about lenses' optical characteristics, we hope you will gain ideas for retraining your mind and reschooling your eyes to envision (and then record) exactly the image you want.

Why Such a Variety of Lenses?

If there's a single thing that SLR camera owners don't lack, it's a choice of lenses — from macro to wide-angle to super-telephoto — that are interchangeable at the flick of a wrist. The SLR camera body uses a mirror and prism to let you view virtually the same image that the lens projects onto the film.

What does all this mean? For some, this means using a normal lens to capture familiar and realistic versions of their surroundings. For others, it means interpreting reality through extreme focal lengths — the more extreme the focal length, the greater its departure from reality.

A choice of lenses with through-the-lens viewing gives you technical control over what you record in a scene. With a telephoto lens, you can capture a mere sliver of your world by zeroing in on the faraway action of a muddy motocross race. With a wide-angle lens, you can surround yourself with more of that same scene than your own eyes could possibly encompass.

With technical control comes the bonus of aesthetic control. The compressed-distance effect of the telephoto lens pancakes that pack of motocross racers, making them appear only inches apart. The wide-angle lens stretches a dandelion in the foreground to Olympian proportions while shrinking the distant racers to tiny ants.

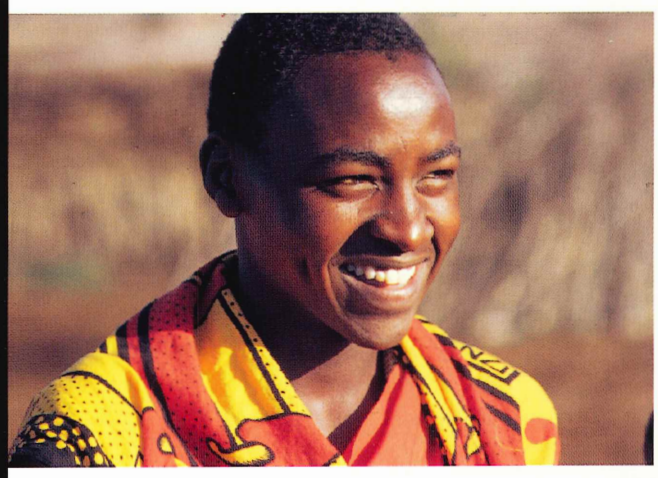
Neil Montanus, *a Kodak Ambassador, worked quickly to make this shot as a storm was looming. He zoomed in to maximum telephoto with his 35-135 mm zoom lens for a larger image of the boaters and their craft. The speed of Kodak Gold max film permitted him to use a high shutter speed to overcome camera and subject movement in this bouncy environment.*

What Is Focal Length?

The key to understanding how one lens differs from another is its focal length. You want to know a lens' focal length because that tells you its magnifying ability and its angle of view.

In technical terms, focal length is the distance (in millimeters) from the optical center of the lens to the film plane when the lens is focused at infinity. For a 35 mm camera, a lens in the 40 to 58 mm range (usually 50 mm) is considered "normal," because it very closely approximates the view of the human eye. A lens below 40 mm is a wide-angle; it takes in a wider field than our normal vision permits and makes subjects appear smaller than a normal lens does at the same subject distance. Longer lenses (75 mm and up) take in a narrower field and make subjects look larger.

When film format changes, so do the specifications for "normal," "wide-angle" and "telephoto," because they are based on the diagonal for the film frame. For example, equivalent focal lengths for the 24 mm format of the Advanced Photo System are shorter than those for the 35 mm format. Most accessory lenses designed for Advanced Photo System cameras are zoom lenses covering popular focal-length ranges, such as 20-60 mm, 24-70 mm and 60-180 mm (approximately equivalent to 25-75 mm, 30-87.5 mm and 75-225 mm in the 35 mm format).



Bud Prince, *a Kodak Ambassador, captured this candid portrait in an African village. It demonstrates the usefulness of the short telephoto range of focal lengths. He used a 70-300 mm zoom lens set at 105 mm. Often called "portrait lenses," telephotos in the 85 to 105 mm range are the most useful telephotos for most photographers.*

Effects of Focal Length

You're used to forming your impressions of the world through your own built-in lenses — your eyes. But other lenses — the ones you use on your camera — are your tools for presenting a different angle on your world.

What do changes in focal length do to your images? As you'll see, some effects are obvious; others are more subtle.

Image Size

The most common and most obvious reason for departing from a normal lens is to fit the image you want onto the film. (See the photo series shot by Kodak Ambassador Neil Montanus on page 2.) You'd choose a telephoto lens to magnify a distant windsurfer; a wide-angle lens to fit the entire QE II in the film frame.

Perspective

A change of focal length can greatly alter the appearance of a scene by changing its apparent perspective — the ▷ ▷

KODAK VIEWFINDER FORUM

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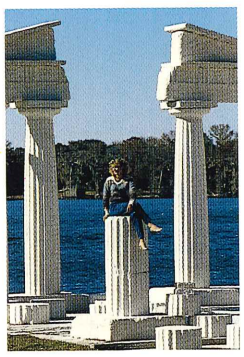
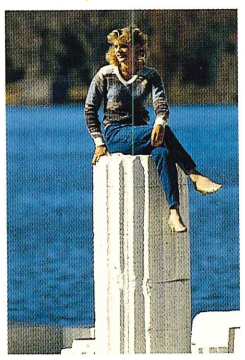
Neil Montanus, a Kodak Ambassador, shot this series from the same subject distance to illustrate how angle of view decreases and magnification increases from wide-angle to telephoto.

16 mm lens

50 mm lens



200 mm lens



400 mm lens

rendering of three-dimensional space in a two-dimensional image. Technically, perspective in your photographs depends on where you place your camera. No matter what lens you use — from wide-angle to telephoto — perspective is the same if the camera position remains the same. However, in practice, because you often change camera position along with your lenses, focal length often appears to alter perspective.

Through its ability to include nearby objects while greatly reducing the size of distant ones, a wide-angle lens seems to exaggerate the impression of space and distance between objects. Because of its narrow angle of view, a long telephoto lens appears to compress perspective and reduce depth; three-dimensional shapes appear flattened and distant objects seem to sit almost in the same plane.

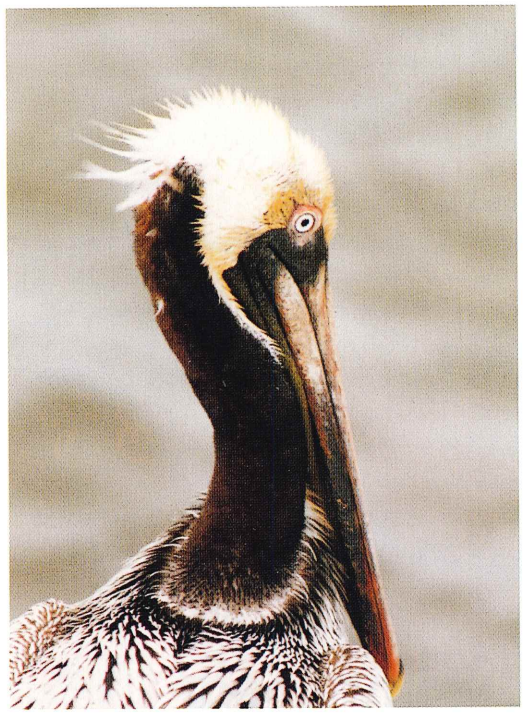
By training your eye to identify how focal length, in conjunction with subject distance, can alter perspective, you'll soon recognize when a change of perspective will make a more effective image. You may want to make a photo series with a range of lenses. As you change focal length, also alter your camera position to keep a foreground subject the same size on the film frame. This will demonstrate effects your eyes may not have perceived and alert you to ever greater potential in your surroundings.

Depth of Field

Depth of field is the zone of sharpness that extends in front of and behind the primary point of focus. In addition to lens aperture and camera-to-subject distance, focal length has a marked effect on depth of field.

Practically speaking, for a particular camera and a particular subject distance, depth of field increases as lens focal length decreases. For example, with a 28 mm lens on a 35 mm camera, with the lens set at f/11 and focused on a subject 10 feet away, everything from about 4 1/2 feet to infinity will be in focus. With a 50 mm lens, the depth will extend from about 6 feet to 30 feet. With a 200 mm lens, the range of sharpness will be 8 1/2 to 12 feet. If your camera doesn't have a depth-of-field preview that will let you preview the scene at the actual aperture selected, check the depth-of-field scale on the lens barrel to be sure your depth of field is adequate for your subject.

When you need the greatest possible depth of field for a particular aperture, set the infinity mark on the focusing ring opposite the far limit of the depth-of-field range for that aperture on the depth-of-field scale. For example, when a 50 mm lens at f/16 is focused at infinity, the far limit of depth of field will be infinity, and the near limit about 15 1/2 feet. When you move the infinity mark on the focusing ring to the mark for f/16's far limit on the depth-of-field scale, your far limit will still be infinity, but your near limit will be about 7 3/4 feet.



***Allen Benton,** a member of the ViewFinder forum, captured this pelican portrait on Cedar Key, Florida. Brown pelicans are tame, but getting a good background isn't easy. Allen braced his 75-300 mm lens on a car window, and zoomed in to 300 mm, creating a pleasing out-of-focus surround for his photographic prey; 1/250 second at f/8. Kodak Gold 400 film.*

Lens Speed

Lens speed simply refers to the maximum aperture of a lens, i.e., its lowest f/number. As lens focal length increases beyond the normal lens into telephoto, lens speed typically decreases.

Faster lenses permit shooting under dimmer lighting conditions. They also allow you to use faster shutter speeds in any light, helping you to avoid the effects of camera and subject motion. With faster lenses, the image you see in the viewfinder will be brighter, making it easier to compose and focus.

Camera and Subject Movement

While a wide-angle lens is forgiving, a telephoto lens is demanding. Just as the longer lens magnifies the image, it will also magnify the effects of camera and subject movement. At the same time, the added size and weight can make handholding a telephoto lens a shaky proposition. For best results, use a tripod or other steady support with lenses longer than 200 mm at shutter speeds below 1/500 second. Allen Benton, a member of the Kodak ViewFinder forum, braced his camera and zoom lens (set at 300 mm) on a car window to capture the pelican at the left.

Film-Speed Selection

Film speed takes on added importance in the realm of telephoto lenses and zoom lenses at longer focal lengths. We've seen that these lenses tend to be slower at the same time that they exaggerate camera and subject movement. These lenses will afford maximum flexibility if you use a versatile film like 800-speed Kodak Gold max film. This film provides the high speed that will allow you to use higher shutter speeds in dim lighting or for action shots, (like the Neil Montanus boating shot on page 1) or smaller apertures for greater depth of field. Its wide exposure latitude for both under- and overexposure make it a practical choice for many lighting-and-lens situations.

Fixed and Variable Focal Lengths

Lenses come in two types: those with a fixed focal length and those with a variable focal length. Each type has its own advantages and limitations — and an advantage or limitation in one type of shooting can be just the opposite in another. Lens choice depends on your personal preference and photographic habits.

Fixed-Focal-Length Lenses

When you bought your camera, it probably came with a fixed-focal-length normal lens — most likely 50 mm. Other fixed-focal-length lenses come in a vast array from the widest wide-angle to the longest telephoto, but each is designed to function only at its designated focal length.

If you specialize in shooting one type of subject, a couple of fixed-focal-length lenses may be all you need. If you love to experiment with everything from photojournalism to macrophotography, your best bet may be a zoom lens or two.

Variable-Focal-Length Lenses

Commonly called zoom lenses, variable-focal-length lenses provide a continuously adjustable focal length over a particular range. They offer you the flexibility of many different focal lengths along with the convenience of being able to carry less equipment. A single 35-135 mm zoom lens not only replaces a wide-angle, a normal and a telephoto lens; it also gives you all the focal lengths that fall in between.

Perhaps the most enticing characteristic is that a zoom lens lets you fine-tune your composition without changing your shooting position. Instead of approaching or retreating from your subject, you can stay in one spot and adjust the focal length. And of course, zooms also let you change focal length during an exposure for creative effects. (See the Ferris wheel shot in the Member Gallery on page 6.)

Zoom lenses are available in an enormous variety of focal-length ranges. Among the most popular are the ones that cover a wide-angle-to-normal range (28-50 mm), a wide-angle-to-medium-telephoto range (35-105 mm), and a medium-telephoto-to-full-telephoto range (80-200 mm).

The disadvantages of zoom lenses? The added glass elements — particularly in zooms with the greatest ranges — make them heavier and bigger than fixed-focal-length lenses. Minimum focusing distances may be greater. And zooms are generally slower, with smaller maximum apertures than equivalent fixed-focal-length lenses. Most zooms have a variable maximum aperture that gets smaller as you move toward the longer focal lengths. For example, a 70-210 mm f/4.5-5.6 lens has a maximum aperture of f/4.5 at 70 mm, but a maximum aperture of f/5.6 at longer focal lengths.

What Lenses Do You Need?

This section may help you zero in on which lenses are best for your kind of shooting. Hopefully, you'll see these lenses as tools for capturing your view of the world and expressing your unique photographic style. The lens effects described below apply to fixed-focal-length lenses and zoom lenses set at equivalent focal lengths.

Normal Lenses

The normal lenses on most 35 mm cameras are fast, with maximum apertures typically extending to f/1.2 or f/1.4. The large maximum apertures of normal lenses give you a lot of flexibility in dim light and let you use higher shutter speeds for stopping action.

Wide-Angle Lenses

A moderate wide-angle lens — one with a focal length of 28 or 35 mm, is probably the most useful for working in tight areas where you want to include a large field while avoiding obvious distortion.

continued from page 2

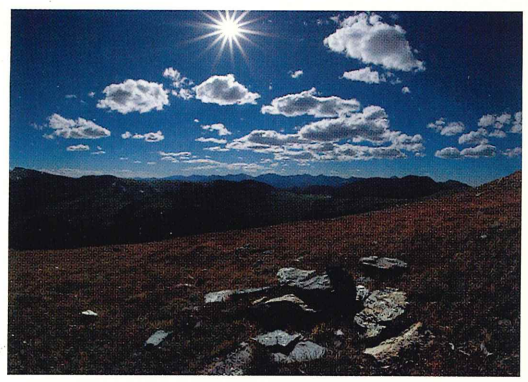
Don Chamberlin, *a Kodak Ambassador, transformed this otherwise quaint structure by using a 16 mm lens. This subject shows characteristic bending of straight lines, or "barrel" distortion, common in wide-angle shots.*

The 35 mm lens represents a gentle transition into wide-angle photography. It usually has a fairly large maximum aperture, f/2 or f/2.8, making it especially helpful for shooting indoors and in low light.

When you move to a 28 mm lens and shoot subjects close to the camera, some of the typical effects of wide-angle photography may become evident. Barrel distortion, the bulging of straight lines toward the edge of the frame such as that shown in Kodak Ambassador Don Chamberlin's photo above, may begin to appear. Keystoning, the apparent convergence of parallel lines, will be evident when you tilt the camera up or down even slightly.

The 24 mm lens presents a vastly altered view of the world. By emphasizing the foreground, it can create great drama. The biggest challenge with a 24 mm lens is in using the whole frame wisely to maintain interest in a large visual expanse.

Most modern 20 mm and 21 mm lenses are "rectilinear." This means that vertical and horizontal lines stay straight across the frame. Barrel distortion is eliminated, and photos look more "correct." A photo made with a rectilinear 20 mm lens may appear more natural than one made with a nonrectilinear 24 mm lens. The 20 and 21 mm lenses are good for shooting architecture. Although they transform the shape of buildings when you shoot up or down, distortion is at a minimum when you hold the camera level.



This striking comparison, shot by ***Don Chamberlin****, shows the effect of a wide-angle lens on straight lines in a scene. When lines pass through the center of the frame, as the horizon does, in the top photo, they appear straight. In the bottom photo, Don tilted his camera and 18 mm lens upward to place the horizon low in the frame, giving it a dramatically bowed appearance.*

Lenses at the extreme end of the wide-angle range (about 6 to 18 mm), known as fisheyes, take in an angle of 180 degrees or more — for a rounded, "fisheye" look. You can record everything in front of the rear plane of the lens — including your feet and hands if you're not careful. In the 6 to 10 mm range, they produce only a circular image. Full-frame fisheyes (15 to 18 mm) produce an image that fills the rectangular frame, but they still give a great deal of distortion. If you're considering buying a fisheye lens, you'll have to weigh its usefulness against its high price.

Telephoto Lenses

You'll probably find your most useful telephoto lens in the 75 to 135 mm range. Many of these lenses have quite large maximum apertures (f/2 or f/2.8). Because they minimize facial distortion and allow a comfortable distance between you and your subject, medium telephotos are ideal for portraiture and candid street shots. Shallow depth of field allows foreground and background to soften, riveting attention right where you want it, as demonstrated by Kodak Ambassador Bud Prince's candid portrait on the first page.

Telephotos with focal lengths of 180 to 300 mm have more specialized applications, such as sports and wildlife photography. They usually have relatively small maximum apertures — often f/4 or smaller — so they're practical only in relatively bright light or with high-speed films. This means that you'll often use these lenses, for which depth of field is already limited by focal length, at or near their maximum aperture, so careful focusing becomes even more important.

Increased magnification also increases the possibility of blurring from camera movement. When handholding your camera, use a shutter speed at least as fast as the reciprocal of the lens focal length (e.g., 1/250 second for a 200 mm lens). At slower shutter speeds, use a tripod or a handy rest to steady the camera. The active subjects typically photographed with these lenses often call for high shutter speeds anyway. Many autofocus SLRs will default to the highest possible shutter speed when a long telephoto is mounted on the camera.

All the characteristics and effects associated with telephoto lenses are more pronounced with lenses longer than 300 mm. Because they're difficult to hold steady, you'll need a tripod unless you can shoot at very fast shutter speeds. (Most such lenses have tripod sockets in the middle of the lens barrel for extra stability.)

Special-Purpose Lenses and Accessories

Macro or Macro Zoom Lenses — the most widely used of the special-purposes lenses. They let you focus closely on small subjects. Most macro lenses are in the normal or moderate telephoto range.

Mirror or Reflex Lenses — use the same technology as mirror-reflex telescopes to create large images of faraway subjects. They "fold" the light path by means of two optical mirrors at the ends of the lens barrel, permitting the lens to be shorter, wider and better balanced than conventional lenses of equivalent focal lengths. Mirror lenses typically have focal lengths of 500 to 2000 mm. Kodak Ambassador Don Chamberlin used a 500 mm mirror lens to capture the buffalo portrait at right.

Teleconverters — fit between the camera body and the lens, and provide an inexpensive way to increase the focal length of any lens. They extend or multiply the focal length by two or three times, depending on their power.

Perspective-Control Lenses — special wide-angle lenses with a front that you can shift up or down (or side to side) in a rotating mount, while keeping the camera level to minimize distortion.

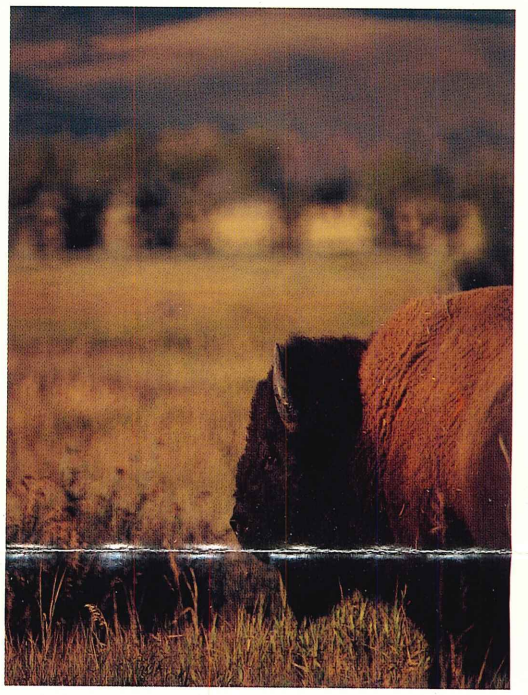
What's the Right Lens for Your Camera?

Of course, compatibility between a lens and your camera body is a must. Each camera manufacturer uses a different mounting system. Most independent lens manufacturers make lenses to fit all the popular camera brands, while others provide adapters.

Many SLR lens manufacturers offer two types of lenses — autofocus and manual. Most autofocus lenses are brand-specific; they're compatible only with their own brand (or sometimes even specific models) of camera.

If you have an autofocus camera but also own a number of manual-focus lenses, being able to use them on your autofocus camera body can save you a lot of money. In most cases, you must focus these lenses manually. However, some camera manufacturers offer an autofocus adapter, and many autofocus SLRs that accept manual-focus lenses have a feature that tells you when you've achieved correct focus with a manual-focus lens.

If you own a manual-focus camera, the manufacturer's autofocus lenses may fit onto your camera body, but you'll have to focus them manually. Before you mix autofocus and manual components, be sure that your camera's other electronic functions — such as auto-exposure mode — will still operate normally.



Don Chamberlin *used a 500 mm telephoto lens to make an impressive portrait of this distant woolly beast. When you can't possibly approach a subject — or wouldn't want to — long telephoto lenses let you capture a narrow angle of view. Their shallow depth of field can also turn a dull or distracting background into a soft blur.*

Handle with Care!

Whatever type or brand of lens you choose, remember that all lenses are precision instruments that you must handle with care. You may want to use a good-quality glass UV or skylight filter to protect the front element. A lens hood can reduce off-axis, flare-producing light, while also providing physical protection. Keep the front lens cap on when you're not shooting; attach the rear lens cap when you remove a lens from your camera.

Be sure to keep your lenses free of dust and fingerprints. If a lens gets dirty, be careful to follow the manufacturer's instructions for cleaning it.

Ready for That New Perspective?

Whether you have a lone fixed-focal-length lens, a modest zoom or a complete battery of lenses, you need to learn each lens' complete capabilities. If you usually rely on your camera's automatic systems to focus and choose your aperture and shutter speed, break the mold! Take your camera off automatic. Focus. Adjust the aperture. Put each lens through its paces.

With the choice of lenses you have today, you can cross into just about any wonderland your imagination can conjure. But fortunately, if you choose your lenses carefully, you should be able to satisfy most of your needs — practical and whimsical — with just a few. The important thing is to pick lenses that match *your* vision of the world.

TIPS, ADVICE AND IDEAS

AMBASSADOR TIPS

Changing the look of your photographs may be as simple as attaching a new lens to your SLR camera, but getting optimal results is a matter of education and practice. Here, a Kodak Ambassador, Bob Rogers, offers a few tips for using lenses. The practice is up to you.

"On one of my recent hikes, I came upon this gorgeous, black Swallowtail butterfly. Staying calm and being careful not to startle my shy subject, I mounted my 80-210 mm lens onto my camera, which I always keep in my backpack along with my 28-85 mm zoom. Zoom telephotos are great for getting a good-sized image of a small subject without crowding it — or scaring it away altogether.

I knew I had enough light for a handheld shot. Staying four feet from my subject (the minimum focusing distance for the lens) I set my exposure: 1/125 second at f/5.6. Then I zoomed in, focused and got this lovely portrait. The shallow depth of field softened the background, putting all the attention right where I wanted it."

MEMBER TIPS

We invite your tips!

The Kodak ViewFinder forum is a place to exchange thoughts and ideas on photography. Your own tips might help your peers discover something new — the same way we hope our Kodak Ambassadors help to inspire your photography. If you have something interesting to share about black-and-white photography, (or any photography), please send it in to us by February 15, 1998.

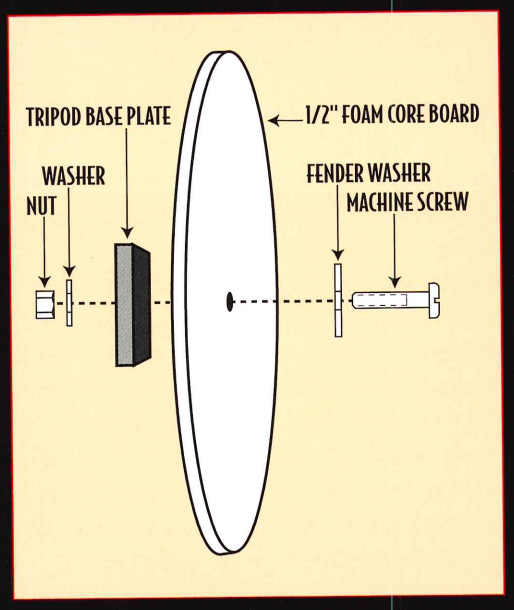
Think Spring!

It's not too early to start thinking of Spring and the myriad of photo opportunities it offers. For the wildflower photographer, the rush of blooming starts early in the season and continues through the late summer. We asked a couple of our Kodak Ambassadors, who work in the National Parks, for tips on capturing nature's bounty of wildflowers.

Ambassador Mary Mather never leaves the house without a white plastic trash bag. She finds that it makes a great reflector and wind break, especially in the dim light of the woods. She also carries a few shish kebob skewers and clear plastic wrap. The skewers act as stakes to hold the wrap, which shelters delicate blooms from the wind while letting natural light pass through. (She advises covering the sharp ends of the skewers with corks to prevent accidents, as you seek out your subjects.) Crumpled aluminum foil stretched over cardboard and attached with clothespins also works well as a reflector and wind break. To get really close to the ground, Mary often inverts the center post of her tripod and shoots with the camera upside down.

Kodak Ambassador Ed Skeen often views wildflower photography as a chance to get creative and produce colorful abstractions. He chooses a slow film, such as Kodachrome 25 or 64 film, which allows him to use long exposure times without overexposing his subjects. With a 35-70 mm zoom lens on his camera, he focuses and sets his exposure time at 1 to 3 seconds. During the exposure, he rotates the camera 90 to 300 degrees, depending on the length of the exposure. The result? Ed finds the abstracted images of soft circular streaks very appealing; they convey the essence of "wildflower" without the realistic detail that we usually expect to see in nature photographs. Ed urges all nature photographers, "Experiment and see what you get!"

Professional photographer and ViewFinder forum member James Erhardt offers some tips on making a reflector to use outdoors.



"I've found this to be an effective (yet inexpensive) method for making a reflector to use outdoors for fill-light. Using a 1/2" foam core board, I cut the board into a circle 30 inches in diameter. I then secured the board to a tripod mounting plate using a nut, bolt and fender washer. With the rigid board securely held on a tripod, it solved the problem of precisely positioning and holding the reflector. Using fast-dry paint in the colors of chrome, gold-leaf and white, I spray a fine mist of each color in a combination that gives me the desired result. The paint when sprayed as a fine mist is dry within a few moments. This allows me to fine-tune both the intensity and color of the reflected light. I have found this to be the most convenient and effective fill-light reflecting system that I have ever used."

Interested in underwater photography? ViewFinder forum member Donald Morrison gives you the A-B-Cs:

"High-quality underwater photography requires several components. First, you must be a capable scuba diver, or capable enough to concentrate more on taking pictures than on surviving 40 feet below the surface.

Next, you should use a high-speed color negative film, which gives greater depth of field with smaller f/stops. In clear shallow water, you can take photos without the use of an electronic flash. This increases the available shutter speed to help stop the action. For this type of photography, Kodak Royal Gold ISO1000 film gives great latitude in exposure and shutter speed to the diver/photographer.

And finally, you need the right lenses for underwater photography. In my opinion, the best are available for use on Nikonos cameras and are optically corrected for underwater use, so they cannot be used above water. I recommend the 28 mm, 20 mm and 15 mm UW Nikkors. The 28 mm f/3.5 UW Nikkor lens delivers a picture angle of 59 degrees, and is a good lens for photographing fish and other close-swimming animals, such as the sea lions." (See photo above.)

A special thanks to those ViewFinder forum members who submitted tips and advice. Now it's your turn!
Please send submissions to:

Member Tips & Advice
Kodak ViewFinder forum
Eastman Kodak Company
P.O. Box 7644
Mount Prospect, IL 60056-9897

All submissions become the sole property of Eastman Kodak Company and will not be returned.

WHAT'S NEW AT KODAK

▻▻ New KODAK Color Reversal Film Delivers Superb Performance

The newest member of Kodak's E-Series, Kodak Professional Ektachrome film E200 gives photographers the high-quality benefits of transparency film even in lighting situations that used to require color negative film. This is the first high-speed, color reversal film that has a lower-speed "look"—lower contrast, rich accurate colors and great image structure. Plus, it delivers outstanding performance, retaining high image quality even with push processing up to EI 1000, a first for any color reversal film.

Heinz Kluetmeier *needed a faster shutter speed to stop the action of the popular sport of pato in Argentina. Here he used Kodak Professional Ektachrome film rated at EI400 and pushed one stop in processing.*

A daylight-balanced, 200-speed film designed for process E-6, Kodak Professional Ektachrome film E200 will appeal particularly to sports and wildlife photographers who constantly deal with uncertain lighting conditions.

"Many professional and advanced photographers prefer transparency film, but have been afraid of sacrificing image quality in difficult lighting situations," notes Pat Siewert, President of Kodak Professional. "With Kodak Professional Ektachrome film E200, they get what they've wanted — exposure flexibility and high image quality in a color reversal film."

During push processing, there's a minimal change in contrast with Kodak Professional Ektachrome film E200, and the film maintains its tone scale and good color balance. The film also has excellent color rendition throughout the tone scale with pleasing, natural skin-tone reproduction. And it holds details in both highlights and shadows, even during push processing. Each cassette of the new film has a special writable area, where notes can be made with a permanent marker, making it easy for photographers to advise labs of push-processing requirements.The new film is now available in 135-36 and 35 mm x 100 ft. roll lengths, and will be introduced in 120 format in early 1998.

▻▻ Digital Camera Offers Quality and Convenience

The new Kodak Digital Science™ DC210 zoom camera is the latest embodiment of Kodak's theme: Take Pictures. Further.™ The DC210 offers a true megapixel CCD image sensor, which captures one million pixels per image, to give photographs vivid colors and detail. A 2X zoom lens, equivalent to 29-58 mm range on a 35 mm camera, is built in. And close-up mode captures details as close as 8 inches (0.2 m).

Because of the camera's compact design, it offers point-and-shoot convenience including automatic focus, exposure control and white balance. For ultimate control, there are also manual overrides of exposure (plus or minus two EV). The built-in flash automatically fires when needed and offers red-eye reduction.

Within the 1.8-inch (45 mm) color LCD panel, you can preview pictures and review them after you take them. An easy-to-use control wheel and graphic interface direct all camera functions, including quick-delete of unwanted images.

The DC210 also comes with a removable 4 MB Kodak Digital Science picture card, which allows storage of up to 60 pictures. The card fits into an optional adapter that slides into the PCMCIA slot on laptop or desktop Microsoft Windows or Apple Macintosh computers.

And there's no need to transfer pictures with an intermediary software application. The DC210 camera has IrDA compatibility, so it can communicate directly with compatible computers. All you have to do is snap the picture, plug the camera into your computer and you can begin working with the image in seconds. The Kodak Digital Science DC210 zoom camera is available in stores now.

▻▻ KODAK ADVANTIX Camera is Ranked Tops in APS

A leading consumer publication recently gave the Kodak Advantix 3700ix camera the highest overall rating among non-zoom Advanced Photo System (APS) cameras. Calling the 3700ix camera "especially capable," the publication praised the camera's compact, lightweight construction.

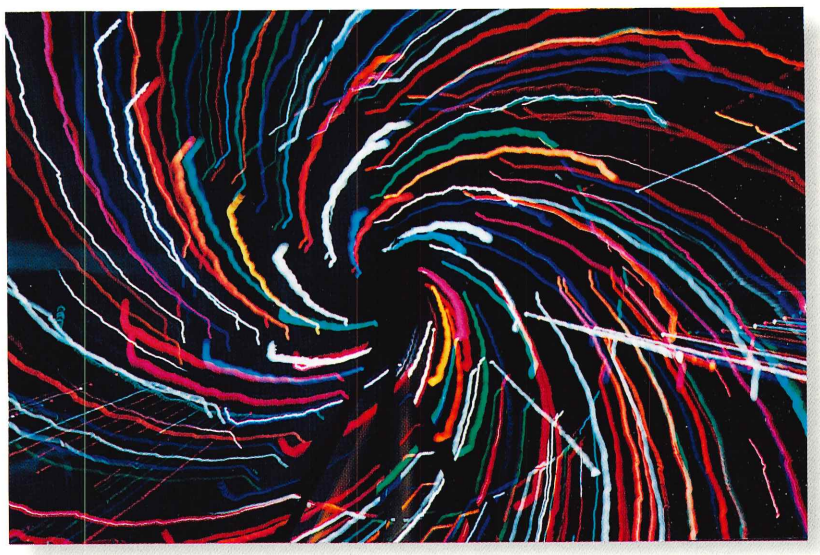
With helpful features like a warning indicator when the subject exceeds flash range, large lens/flash separation that helps reduce red eye, infinity focus lock and a film-compartment interlock that prevents accidental opening, the Kodak Advantix 3700ix camera, at a cost of around $155, is recommended as "an excellent choice."

For more detailed information on all of these topics, call the Kodak Information Center at 1-800-242-2424, or visit the Kodak website on the Internet at www.kodak.com

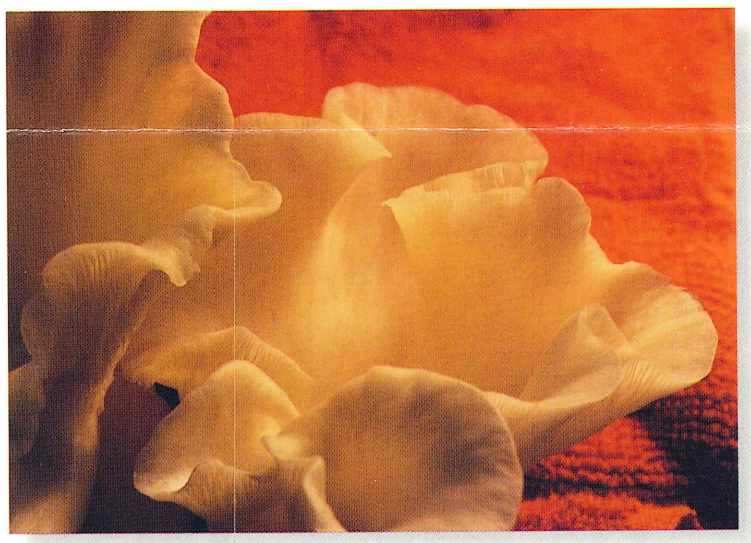
MEMBER GALLERY

Display your best work here for other members to see. This issue highlights member photos taken with various lenses and Kodak film. All the shots we received were great, and some of the best are displayed here.

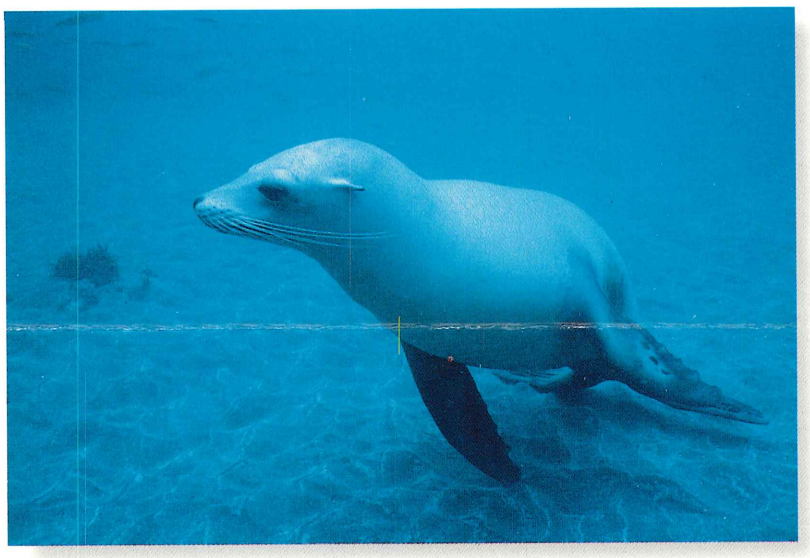
(From front cover)
Jack Garrison *spotted this colorful parrot couple in the Omaha Zoo. Poised on a skywalk above the bird sanctuary, he used an 80-200 mm zoom lens to zero in on the magnificent color and detail of his subjects; 1/125 second. Kodak Royal Gold 400 film.*



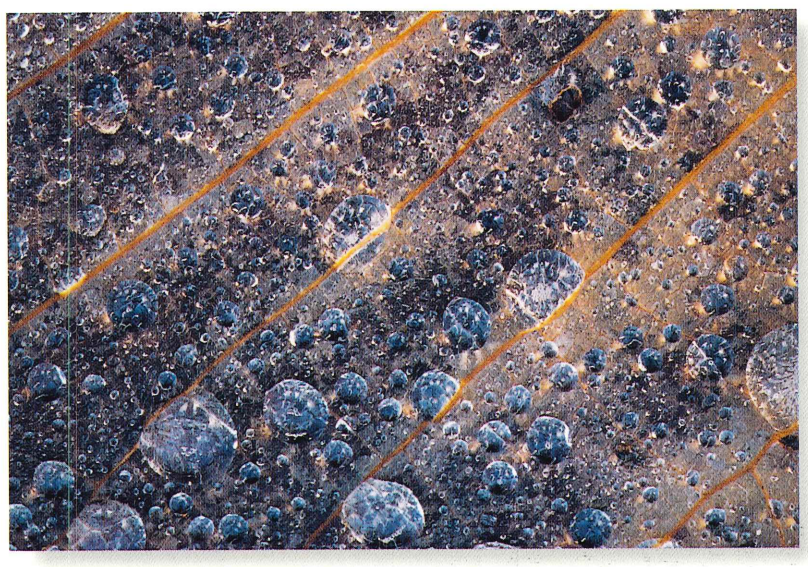
Tamara Ulferts *recognized the creative possibilities of a small Ferris wheel late at night. With her camera mounted on a tripod, and using a cable release to assure camera steadiness, she set her shutter on "B." During a four-second exposure, she rotated her 80-200 mm zoom lens to make a colorful abstract design; 4 seconds at f/8. Kodak Gold 100 film.*



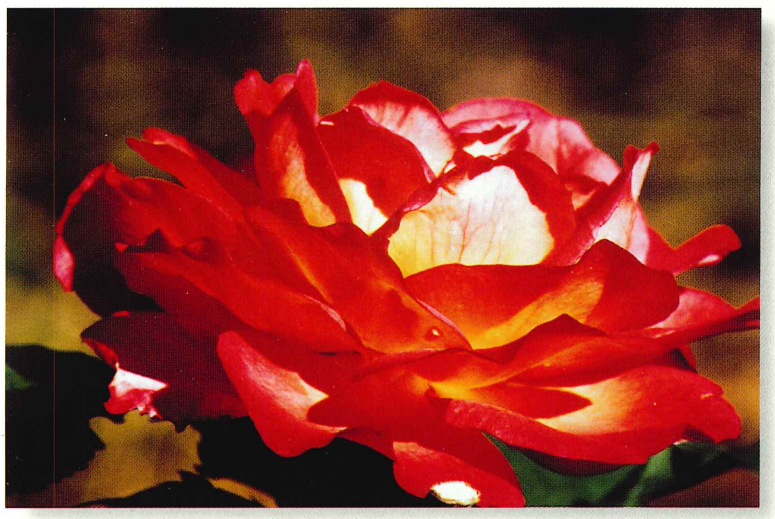
Bob Littlefield *used a 50 mm macro lens to get close to these oyster mushrooms growing under a constant Jonsten light. He chose a daylight-balanced film to produce the warm tones; 1/250 second at f/5.6. Kodak Gold 400 film.*



Donald M. Morrison *was 35 feet below the surface off Santa Barbara Island, CA, when he encountered this sociable sea lion. He used a 28 mm lens on his underwater camera to include an expanse of the creature's surroundings; 1/125 second at f/11. Kodak Royal Gold 1000 film.*



Geraldine Clark *was intrigued by these raindrops on an oak leaf in early-morning light. With her camera mounted on a tripod, she used a 100 mm lens to capture a lovely abstract design; Kodak Ektachrome Elite II 100 film.* ▻▻



◁◁ ***Robert Wilson*** *used his 180 mm macro lens to move in close and record the glory of an unpicked rose in the garden. Full early-morning sun let him choose a very small aperture to record all the blossom's magnificent detail; 1/30 second at f/22. Kodak Ektachrome professional E100SW film.*

Francis Aloise *caught all the exuberance of boyhood in this informal portrait. He used a 70-210 mm zoom lens set at its maximum focal length. Overcast conditions diffused the daylight to make the lighting ideal, and a moderately large aperture further softened the background to isolate the subject; 1/500 second at f/5.6. Kodak Gold 200 film.*

Jerry Moran *created his own fireworks extravaganza by making a time exposure of a July 4th celebration. With his camera on a tripod, he set his 55-135 mm zoom lens at 75 mm. With the shutter on "B," he opened the lens for 10 to 12 seconds to record multiple bursts on the same frame of film; 10 to 12 seconds at f/8. Kodak Gold 200 film.*

Morgan Sinclair *used a soft-focus lens to capture this ethereal depiction of bamboo. 1/250 second at f/5.6. Kodak Ektachrome 64 professional film.* ▷▷

KODAK VIEWFINDER FORUM

TAKE A BREAK FROM COLOR

In the next issue of *View Points,* we'll publish some of the terrific black-and-white photographs we've already received from our members, and hopefully many more are yet to come. If you used Kodak film to create a great black-and-white shot, please send it to us along with a description of how and where it was taken.

To submit your photo or photos, send us prints (no original slides, negatives or Advantix film cassettes yet) taken on Kodak film and printed on Kodak paper no later than February 15, 1998. Also include this Photo Submission Form, with the information on the back completed. Please limit entries to five prints. If we select one of your photos for final consideration, we will contact you and ask you to send a slide, negative or Advantix film cassette, which will be returned.

Send this completed form and your photo submission(s) to:

Member Photo Submissions
Kodak ViewFinder forum
Eastman Kodak Company
P.O. Box 7644
Mt. Prospect, IL
60056-9897

Don't forget to:

- **Complete and sign the back of this Photo Submission Form.**
- **Write your name, address, phone number and Kodak ViewFinder™ forum member number on the back of the photo(s) you're sending.**
- **Write "Photographs Enclosed – Do Not Bend" on the front of the envelope.**
- **Affix appropriate postage to the envelope.**
- **Submit by February 15, 1998.**

(over, please)

Please print clearly. Complete and sign a copy of this form for each photo submission.

Name _____

Address _____

_____

City _____

State_____ ZIP _____

Daytime Phone Number _____

Year Photograph Was Taken _____

Camera Used _____
(make and model)

Film Used _____

Film Speed _____

F-stop _____

Shutter Speed _____

Special Lenses _____

_____

_____

Filter(s) Used _____

_____

_____

Other Equipment
(special flash, etc.)

_____

_____

_____

Briefly tell us about the shot (i.e., how it was taken, lighting conditions, unusual circumstances).

_____

_____

_____

_____

_____

_____

_____

_____

If you want Kodak to address any difficulties you experienced with the shot, please explain the problem in as much detail as possible.

_____

_____

_____

_____

I,_____,
(Signature)
certify that I have read, understood and complied with the guidelines stated below regarding this photograph. I agree as follows:
1) That said photograph was taken on Kodak film by me and printed on Kodak paper.
2) I hereby assign to Eastman Kodak Company the enclosed print, which will not be returned. If said photograph is chosen by Eastman Kodak Company for purposes of exhibition or promotion within the Kodak ViewFinder forum, Kodak will not reproduce the photograph without first securing my consent through both a written release form and a model release form, if applicable, as well as a request for the original negative, slide or Advantix film cassette. Said original negative, slide or Advantix film cassette will then be returned to me by Eastman Kodak Company.

Complete, detach and mail with photograph submission(s) by **February 15, 1998.**

Digital Expands Photo Horizons

It's impossible not to notice that our world is going digital—in the information we use, in our communications, in the ways we do business and in the images we see all around us. Maybe you're already supplementing your traditional photography with a digital camera. Perhaps you've worked with digital images on your home computer or in your workplace and would like to do more. Maybe you're intrigued by all the new technology but haven't figured out the best way to get started.

If you're not already a pro with access to sophisticated equipment and software, the Kodak Image Magic system provides a great way to get more mileage from your images, by going digital. The Kodak Image Magic copyprint station II and the Kodak Image Magic enhancement station 100 expand on traditional photography to make anyone's images more versatile.

Look for the Kodak Image Magic system in photo specialty stores and retail stores with photo departments.

KODAK IMAGE MAGIC™ Copyprint Station II

Want to know the easy way to make reprints, enlargements and one-of-a-kind photo gifts? The Kodak Image Magic copyprint station is the answer.

This walk-up, user-friendly system consists of a monitor, a scanner, a digital processor and a printer. The touch-screen monitor leads you through the process of making reprints and enlargements—from wallet size to 8 x 10 inches—and responds to the touch of your finger when you choose your options.

*Kodak Ambassador **Bob Harris** used the capabilities of the Kodak Image Magic copyprint station to retouch and exaggerate the threatening aspect of this Kenyan lion by enhancing the colors of her mouth.*

In addition to having exciting new ways to make use of photos (by enlarging, making reprints or adding colorful borders), the copyprint station also overcomes the problem of lost negatives.

So now all you need to get photographic-quality results is an existing photo. (Which makes all those old photos hiding in shoe boxes potential candidates for reprints and enlargements.)

What else is this machine capable of? In a word: lots. After scanning a photo (of almost any size), here are just some of the things you can do with the image:

- Zoom in to enlarge part of the image and crop unwanted elements
- Rotate the image to change its format

- Reduce red eye
- Adjust and enhance color and brightness
- Add professionally designed graphics
- Produce "mirrored images" that you can then transfer to T-shirts, ceramic mugs and a host of other gift ideas.

Additional Output

But that's far from the whole story. Besides making prints, you can also write your images to computer diskettes that you can use on standard PCs.

The Kodak Image Magic enhancement station offers sophisticated software for image restoration. Cloning and other retouching features let you repair cracks and spots, modify or enhance colors, and alter contrast in faded or damaged photos.

- Kodak picture disk plus—A Kodak picture disk plus includes your picture in two different formats: A FlashPix file and a JPEG file. Most imaging software can use JPEG files without a problem. FlashPix is a new type of file that lets you open, edit and save photos on your home PC very quickly. If you ask for a FlashPix file, make sure you have software on your home computer that can use it. Currently, software such as Microsoft Picture It! and Adobe Photo Deluxe software can use FlashPix files. Take the image home—edit it, make a screen saver or e-mail the image to family and friends.

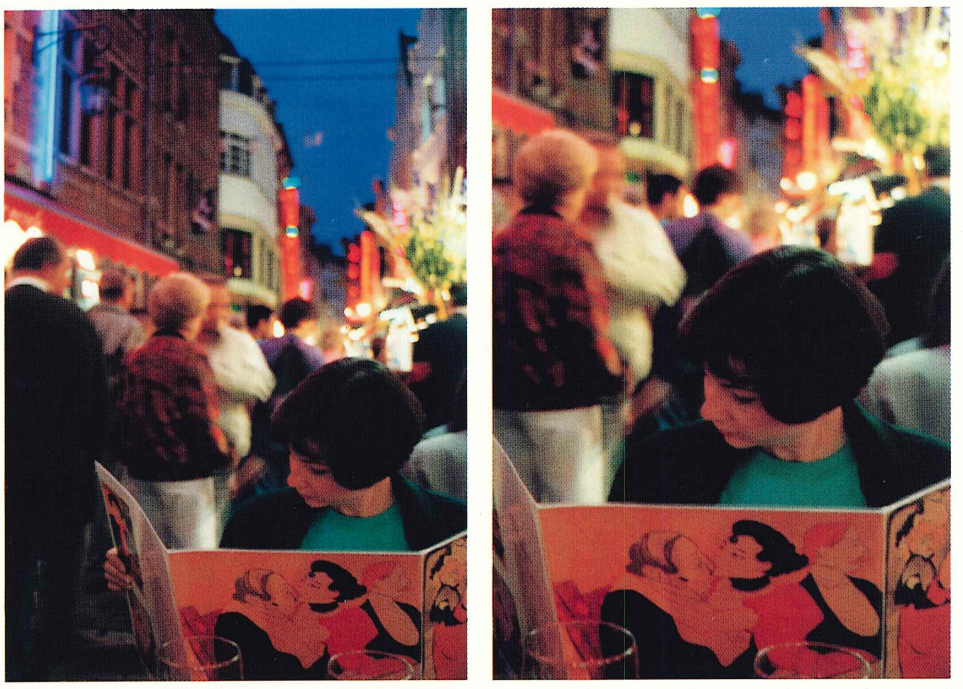
Input

Besides making prints from your prints, you can make prints from the following input options:

- Kodak picture disk or picture disk plus diskettes—Images stored on picture disks or picture disk plus diskettes are prime candidates for prints. Just insert the diskette into the disk drive on the copyprint station, select the image you want and make the print. It's that easy.

- Photo CD Discs and FlashPix CDs—These CDs are available from your photofinisher at the time you get your film processed. When you use the Kodak copyprint station, you can make photo-realistic pictures, up to and including 8 x 10 inches, from images stored on CD.

- Digital camera input—You can make photos from images captured with the latest generation of digital cameras, including the Kodak Digital Science 120 zoom camera. Images are captured on the camera's removable PC card and then transferred to the Kodak copyprint station via a special PC card reader. Depending on which Kodak digital camera you use (DC 50, DC 120, DCS 410 or DCS 420), the Kodak digital camera accessory kit can provide great ID shots, passports and portraits.



***Buddy Walter's** shot of the Grand Marketplace in Brussels was made more intimate using the zoom and cropping functions of the Kodak Image Magic enhancement station.*

KODAK IMAGE MAGIC Enhancement Station 100

Do you want to launch your images into the digital world? The Kodak Image Magic enhancement station gives you even more options for input, image manipulation and output.

The operator-assisted enhancement station includes sophisticated software for image editing, including...

- Image restoration—A cloning feature eliminates scratches, tears, creases, stains and other defects from valuable images
- Vibrancy restoration—Give old or faded color prints new life
- Image enhancement and alteration—Adjust color, contrast and brightness; add text to photos; have collages made from many separate images
- Addition of professionally designed borders and backgrounds—Create business tools, gifts and keepsakes.

The enhancement station can accommodate these input options in addition to those listed for the Kodak copyprint station:

- TIFF and PICT files
- Retouched or manipulated images on disk that require high-quality output
- A direct Kodak digital camera connection
- Videotapes (transfers single-frame images for output)
- Negatives and slides (at Kodak enhancement stations that incorporate a film scanner for 35 mm, 46 mm, 70 mm and 120 film formats—positive or negative)

For added versatility, the enhancement station also offers these output options in addition to those listed for the Kodak copyprint station:

- Large-format poster prints (at stations equipped with the Kodak Digital Science 1000 PS large format inkjet printer)
- Collages
- Business cards, photo greeting cards, announcements
- Calendars
- Negatives and slides (at stations with optional film recorder)
- Novelty items such as mouse pads, key chains, etc.

For more information on the Kodak Image Magic system and the Kodak FlashPix format, visit the Kodak website (www.kodak.com/go/imagemagic) or call 1-800-23KODAK.

SPECIAL REPORT

PMA '98

The Photo Marketing Association (PMA) is an international trade group, headquartered in Jackson, Michigan, with more than 17,000 members around the world. From February 12-15, they will host their annual trade show, PMA '98, in New Orleans. During the months surrounding PMA '98, many exciting new Kodak products and services will be unveiled. As a member of the Kodak ViewFinder forum you will be one of the first to hear about them, because we're sending you a members only issue: *PMA '98 Special Report*. So keep an eye on your mailbox!

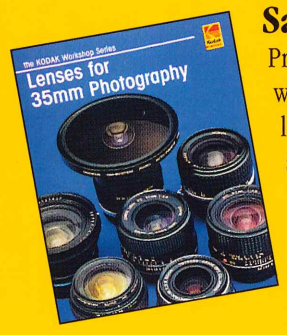
With more than 450 photo imaging industry suppliers contracted for exhibit space at PMA '98, the event promises to be larger and even more exciting than PMA '97. As part of the PMA Annual Convention, the trade show will be seven days of educational and networking activities for photo imaging retailers, image processors, school picture and retail portrait studios, and print-for-pay digital imagers from the U.S. and more than 100 countries.

Membership is open to any firm doing a substantial portion of its business in photo imaging retailing, processing (digital and silver halide) or service work. Cooperating memberships are held by firms that manufacture or distribute products or services for the imaging industry.

Kodak

MEMBERS ONLY DISCOUNTS

To receive these discounts, please identify yourself as a member of the Kodak ViewFinder forum, and provide your member pin number imprinted on your membership card. If you haven't received a membership card, or if you've misplaced it and need a replacement, please call 1-800-395-9990.



Save 15% off the $22.95 cover price of *Lenses for 35 mm Photography* from Silver Pixel Press. A great way to complement the topics covered in this issue, this book will help you decide which of the many lenses on the market today will best meet your needs. It discusses all types of lenses, from fisheye to extreme telephoto, and explains the applications of special-purpose lenses, such as macro and perspective-control. With clear explanations, innovative techniques and easy-to-understand terminology, the book reveals:

- how lenses are constructed
- which lens is best for photographing which subjects
- how to control image sharpness
- how focal length and subject distance affect perspective
- when to use manual focus versus autofocus
- how to care for your lenses
- the benefits and drawbacks of prime and zoom lenses

To order, fax 1-800 FYI FOTO (394-3686) or e-mail silverpix@aol.com with your charge card number, expiration date and PIN. Or send a check for $19.50 per copy, plus $3.50 for shipping and handling, to Silver Pixel Press, 21 Jet View Drive, Rochester, NY 14624.

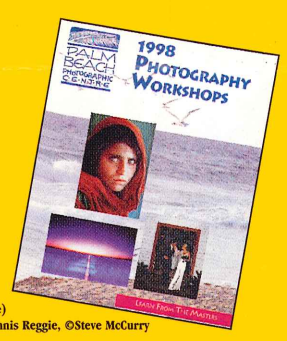
Save 10% on all tuition fees at Palm Beach Photographic Workshops in beautiful Delray Beach, Florida. Upcoming workshops include:

Photography and the Computer: The Creative Process
February 23 - 27
For photographers who want to explore the computer as a creative tool, with a concentration on ideas and philosophical issues.
Instructor: Olivia Parker
Cost: $805.50, after exclusive member discount

Lighting 101: An Introduction to Basic Studio Lighting
February 16 - 20
Learn how to control and manipulate light in the studio, and match the quality of light to the subject to create more effective photographs.
Instructor: Bobbi Lane
Cost: $535.50, after exclusive member discount

Landing an Important Magazine Assignment
March 9 - 13
Award-winning National Geographic photographer Steve McCurry tells you how to freelance in today's magazine market, how to get assignments, shoot a picture story, work in different countries and operate in areas of conflict.
Cost: $535.50, after exclusive member discount

For more information on these exciting workshops, or to receive a free, full-color, photography and/or digital imaging catalog, call (561) 276-9797.



Cover Photos (clockwise)
©Steve Krongard, ©Dennis Reggie, ©Steve McCurry

East African Wildlife Photo Safari
There's still time to join some of your ViewFinder forum colleagues and Neil Montanus — Kodak Ambassador and Master of Photography, PPA — for a once-in-a-lifetime, photographic adventure in Kenya. Space is limited, so call today. 1-800-494-5338.

CONFERENCES, TOURS, and EVENTS

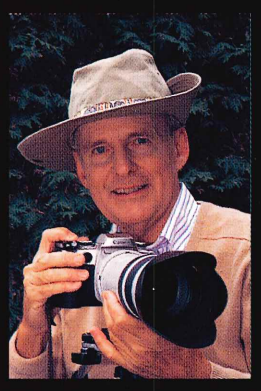


Photo Expedition from the Panama Canal to the Galapagos, May 2 - 17, 1998
Special price for Kodak ViewFinder forum members: Starting from $5,990 per person.

Here's a chance for you and your camera to get as close as you can to the extraordinary. Join Kodak Ambassador Robert S. Harris and a staff of naturalist guides for an intimate exploration of the Galapagos Islands aboard the M.S. Polaris. The ship accommodates just 80 people, so it is large enough to comfortably operate in remote environments, yet small enough to enter ports and narrow inlets inaccessible to bigger ships. The ship carries motorized landing craft called Zodiacs, and a glass-bottom boat for easy access to the undersea world. The tour provides ample time for walking, swimming, photography or simply observing the wildlife.

This 16-day tour includes round-trip airfare from Miami to Panama City, plus all accommodations aboard the M.S. Polaris for transit through the Panama Canal and to the Islands. Call Special Expeditions Galapagos at 1-800 GALAPAGOS (1-800-425-2724) for reservations or more information.

The Hawaii Travel Show: This multimedia presentation of Hawaii's wonders may be coming to a forum near you. Here's a partial list of show places and dates:

Date	Event	Location	Contact
3/1/98	The Gold Rush Chapter	Sacramento, CA	Howard Kessler (916) 783-9488
4/23/98 to 4/25/98	Gulf States Council of Camera Clubs	Tulsa, OK	Eddie McInnis (918) 581-3656 103223.3637@compuserve.com
5/6/98	Toledo Photo Arts	Toledo, OH	Bob Ellis ellisb@sylvania.sev.org
5/14/98	LA Roundup	Los Angeles, CA	Lydia Savedoff (714) 859-0579

QUESTIONS & ANSWERS

Dear Kodak ViewFinder forum,
I am a wedding and portrait photographer and mostly use Kodak Vericolor III professional film (VPS) and Kodak pro 400 MC film (PMC). I keep these films refrigerated until I'm ready to use them. The day before a shoot I take them out of refrigeration and always take double the amount I plan to use. What I don't use goes back into refrigeration until the next shoot. Since I'm not really keeping close track of which rolls are the oldest, I'm sure I may be putting rolls of film in and out of refrigeration several times before I expose them. Does this damage the film?
Sincerely,
David Durlak
Land O' Lakes, FL

Dear David:
As you already know, keeping professional color films refrigerated helps keep them at their optimum color balance and contrast. If you remove the film from refrigeration only a few times and for only a day or so at a time, you shouldn't see any adverse effects. However, if the film is repeatedly subjected to temperatures that exceed normal room temperature (75°F [24°C]), while it's out of the refrigerator, you may see changes in the film. While the film is accompanying you on your shoot, be careful not to leave it in a closed car in warm weather or in a camera case sitting in the sun. Always return it to refrigeration as soon as it's practical. You should also leave the film in its sealed moisture-proof packaging so that condensation from temperature changes won't affect it. If you've opened the sealed packaging, use the film promptly.

It would be a good idea to devise a simple inventory system for your film to keep to a minimum the number of times you remove and re-refrigerate it. Put new film at the back of your supply, and let it work its way toward the front as you use up the older film. That way you're less likely to remove the same rolls from cold storage again and again while some of it goes untouched and unused for an extended time, maybe getting near or past its expiration date. Usually, the relative humidity in refrigerators is high, so inspect the packaging periodically for signs of deterioration.

Dear Kodak ViewFinder forum,
I work for a show promotion company and we stage many events inside convention centers and other large buildings where the lighting is poor. I like to get shots of exhibitors and their merchandise, especially images that show detail of a particular booth while still including the expanse of the rest of the show in the background. So far, my photos (taken with my 35 mm SLR on automatic and flash) haven't been what I'd like.

What tips can you recommend for flash, film speed, etc., to produce optimum indoor photographs?
Kristin Macht
Kodak, TN

Dear Kristin,
Without seeing your photos, it's difficult to know exactly what their problems are. However, it's likely that your camera and flash are working together to give correct exposure for the exhibit in the foreground, the point where the camera is focusing, and letting the illumination drop off beyond that point.

First of all, get yourself a high-speed film such as 800-speed Kodak Gold max film or Kodak Royal Gold 1000 film. If the lighting is really dim, you may want to try Kodak Ektapress Multispeed professional film; its exposure index (EI) is 1600 with normal processing, but you can expose it at speeds all the way up to EI 6400 with push processing. Even with your camera in full automatic mode, the high speed will help extend the flash range, and it will provide more flexibility in the camera's choice of shutter speed and aperture. A color negative film will also provide more exposure latitude than a slide film, and allow for color correction during printing, in case the scenes you're shooting have fluorescent or mixed light sources.

You'll need as much depth of field as you can get to have both foreground and background reasonably sharp. If you have a wide-angle lens (or a zoom lens that extends into the wide-angle range), it will help by letting you get fairly close to the booth while including a wider angle of view. It will also give you more depth of field at any given aperture than your normal lens. Also, use as small an aperture as conditions permit. Instead of operating on full automatic, use your camera exposure mode that will let you choose the aperture, or set the exposure manually.

If you're ready to do some experimenting, you may want to forget your flash and shoot with only the existing light. With a small aperture for good depth of field, you'll want to use a high-speed film to keep your shutter speed as fast as you can. This will help prevent blur from subject motion. If you're not dealing with movement in the scene, you can use a tripod and shoot at slower shutter speeds.

Dear Kodak ViewFinder forum:
I have never had a clear understanding of the relationship between Kodak Polycontrast filters and the different grades of Kodak fine printing papers for black-and-white photography. Can you suggest a simple publication that might give me some insight?
Charles Warren
Terry, Mississippi

Dear Charles:
Kodak Polycontrast III RC, Polymax II RC, Polymax fiber and Polymax fine-art papers are all selective-contrast, black-and-white papers. By using Kodak Polymax filters in the enlarger when you print negatives onto these papers, you can vary the contrast of the papers over a wide range in half-grade increments — approximately from grade -1 through grade 5+. The Kodak Polymax filter set (12 filters for use above or below the enlarger lens) and the Polymax filter kit (12 filters in plastic mounts for use below the lens) have replaced Kodak Polycontrast filters. The filters permit you to fine-tune paper contrast for just about any degree of negative contrast. Use the filters below No. 2 for contrasty negatives, and filters above No. 2 for flat negatives. The No. 2 filter is "normal," and provides the same contrast as an unfiltered exposure.

The graded papers, such as Kodak P-Max art RC paper, Elite fine-art paper and Kodabrome II RC paper, come in a choice of contrast grades. Each box contains one grade, and the grades available are limited for some papers. Graded papers aren't available in half-grade steps.

If you don't use one type and grade of paper consistently, the advantage to using a selective-contrast paper is that you have all the contrast grades in a single box.

Kodak cannot guarantee that all questions will be answered.
All submissions become the property of Eastman Kodak Company and will not be returned. Kodak retains the right to use all submissions in any way they wish.
Look for more information on Kodak at www.kodak.com
Or visit the KODAK Photography Forum on America OnLine at Keyword: Kodak
Advantix, Digital Science, Ektachrome, Elite, FlashPix, Gold, Kodabrome, Kodachrome, Kodacolor, Kodak, Kodak Professional, PhotoCD, P-Max, Polycontrast, Polymax, Take Pictures. Further., Vericolor and ViewFinder are trademarks of Eastman Kodak Company.
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Any questions? Ask us! Just send them to:

KODAK VIEWFINDER™ FORUM

In this issue of
View Points,
the focus is on:

Working with Lenses

Digitally Improving Your Photos

New Product Announcements

Eastman Kodak Company
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Mt. Prospect, IL 60056-9897

Bulk Rate
U.S. Postage
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KODAK

+ o −

EXPAND YOUR POINT OF VIEW